

CLAIMS

1. A pressing device which is used together with a working tool when working of a plate portion is performed, in such a manner as to be moved along a working line in a region in the vicinity of said working line while the surface of said plate portion in the vicinity of said working line is pressed in a plate thickness direction by a rotating roller to prevent a floating of a portion to be worked,

wherein a servomotor is used as a driving source for moving said roller to press said roller on said plate portion in the plate thickness direction.

2. The pressing device according to claim 1, further comprising means for measuring the position or speed of said roller and means for carrying out feedback control according to a measurement result.

3. The pressing device according to claim 1, further comprising a working tool mounting section for mounting the working tool.

4. A pressing device which is used together with a working tool when working of a plate portion is performed, in such a manner as to be moved along a working line in a region in the vicinity of said working line while the surface of said plate portion in the vicinity of said working line is pressed in the plate thickness direction to prevent the floating of a portion to be worked, comprising:

a roller for pressing said region in the vicinity of the working line;

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a frame for supporting said roller;

a mechanism for linearly moving said roller support frame in the direction such that said roller support frame is brought close to or separated from said portion to be worked; and

a servomotor for driving said linear movement mechanism.

5. The pressing device according to claim 4, further comprising means for measuring the position or speed of said roller and means for carrying out feedback control according to the measurement result.

6. The pressing device according to claim 4, further comprising a working tool mounting section for mounting the working tool.

7. A pressing device which is used together with a working tool when working of a plate portion is performed, in such a manner as to be moved along a working line in a region in the vicinity of said working line while the surface of said plate portion in the vicinity of said working line is pressed in the plate thickness direction to prevent the floating of a portion to be worked, comprising:

a roller for pressing said region in the vicinity of the working line;

a frame for supporting said roller;

a mechanism for rotationally moving said roller support frame around a predetermined axis substantially perpendicular to the working advance direction of said pressing device; and

a servomotor for driving said rotational movement mechanism.

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8. The pressing device according to claim 7, further comprising means for measuring the position or speed of said roller and means for carrying out feedback control according to the measurement result.

9. The pressing device according to claim 7, further comprising a working tool mounting section for mounting the working tool.

10. The pressing device according to claim 1 or 4, wherein a linear motor is used in place of said servomotor, and said linear motor also serves as said linear movement mechanism.

11. The pressing device according to any one of claims 1, 4 and 7, wherein a desired pressing force is obtained by controlling the current of said servomotor.

12. The pressing device according to any one of claims 3, 6 and 9, wherein said working tool mounting section is provided at a position on the fixed side of the movement mechanism of said pressing device.

13. The pressing device according to any one of claims 3, 6 and 9, wherein said working tool mounting section is provided at a position on the moving side of the movement mechanism of said pressing device.

14. The pressing device according to any one of claims 1, 4 and 7, further comprising an observer for estimating a pressing force of said roller and means for carrying out force feedback control based on a commanded pressing force and an estimated pressing force estimated by said observer.

15. The pressing device according to any one of claims 1, 4 and 7, wherein said working is laser beam machining.

16. A working robot in which said pressing device described in any one of claims 1, 4 and 7 is installed at the distal end of a robot arm.

17. The working robot according to claim 16, wherein said servomotor of the pressing device is controlled by a robot controller.

18. The working robot according to claim 16 or claim 17, wherein a robot teaching pendant is provided with means capable of inputting at least any one of the position, speed, and pressing force of said roller support frame of the pressing device and the distance between said working tool mounted on said working tool mounting section and said plate portion.

19. The working robot according to claim 16 or claim 17, wherein at least any one of the position, speed, and pressing force of said roller support frame of the pressing device and the distance between said working tool mounted on said working tool mounting section and said plate portion is commanded by a robot program command.

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